

Quality Standards In E-Learning Systems

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Abstract:

This research investigates the quality standards in E-learning systems as proposed by many scholars and international organizations. It is an attempt to highlight the role of executive commitment and technological infrastructure in E-learning systems. It also shows the importance given by E-learning systems to student services, the role of design, delivery of program, legal requirements, financial health, as well as program evaluation in E-learning systems. The researcher uses the descriptive analytical approach which involves analyzing, evaluating, and summarizing scholarly literature. The researcher analyzes previous researches for the sake of comparing and contrasting their results. The findings of this study reveals that a number of attempts have been made in the area of quality standards in e-learning. Much importantly, this study reveals that there has not been an internationally agreed upon list of standards in e-learning system. Therefore, the study recommends that E-learning authorities around the world should discuss the possibility of having an internationally agreed upon list of standards in e-learning system.

Keywords: E-learning, Quality Standards, Electronic Quality Management.

Introduction:

Our world is witnessing a paradigm shift in E-learning and distance education. Moreover, technology has become of paramount importance in all aspects of life. In the field of education, technology has become one of the educational tools and a basis upon which education is based in all its forms, stages, goals and premises. For this reason, E-learning is witnessing a huge boom that requires proactive measures, specialized standards, regulations, requirements and clear guidelines in accordance with the latest global practices in E-education as well as training sector, in order to develop e-programs and improve their outputs.

An important topic of modern education is E-learning and its quality standards. The existing literature on this topic has presented many frameworks,

models and suggestions for assuring quality in e-learning. Misut&Pribilova (2015) used the term e-learning to describe technology-enhanced learning. In this context, e-learning refers to a modern type of learning that uses technology as a tool for delivering knowledge to learners online. The emphasis is made upon the availability of knowledge for learners who can access to educational content from anywhere in the world.

Research Objectives:

The present research aims mainly to achieve the following main objective:

1. To know the quality's standards in E-learning systems.

Moreover, it seeks to achieve the following sub-objectives:

2. To reveal the importance of executive commitment in E-learning.
3. To show the importance of technological infrastructure in E-learning.
4. To know the importance given by E-learning systems to student services
5. To highlight the role of design and services in E-learning.
6. To reveal the importance of instruction and instructor services in E-learning.
7. To know the importance of program delivery in E-learning.
8. To reveal the role of financial health in E-learning systems.
9. To highlight legal and regulatory requirements for the application of E-learning.
10. To reveal the significance of program evaluation in E-learning.

Questions:

This research is an endeavor to answer the question below:

1. What are the quality standards in E-learning systems?

The following sub-questions emerge:

1. What is the importance of executive commitment in E-learning systems?
2. What is the importance of technological infrastructure in E-learning?

3. What is the importance given by E-learning systems to student services?
4. What is the role of design and services in E-learning?
5. What is the role of instruction and instructor services in E-learning?
6. What is the importance of program delivery in E-learning?
7. What is the role of financial health in E-learning systems?

Methodology:

This research follows the descriptive analytical approach. It involves analyzing, evaluating, and summarizing scholarly literature. The researcher analyzes previous researches for the sake of comparing and contrasting their results, thus making generalizations about the problem being studied.

Limits of the Research:

The present research is delimited to examining the quality's standards in E-learning systems. In doing so, it reads and compares a number of previous studies conducted on the same topic.

Research Significance:

The present research gains its significance from the significance of the topic it investigates. Since it investigates the quality standards in E-learning systems, the present research sheds light on an important topic of modern education. Moreover, few studies have been conducted on the said topic.

Previous Studies:

Shraim (2020): The researcher effectively reviews current quality of online education frameworks and guidelines employed in

different contexts. This is done by analyzing 72 new publications. The researcher then proposes the framework of ISO/ IEC 40180. The study reflects that since there is no obvious framework for ensuring online education's quality, ISO/IEC 40180 will be useful.

Jia(2002): This study carries the title "**Standards in eLearning: A matrix of analysis**". It summarizes a number of available standards of quality in the US. It analyzes as well as organizes these standards into a matrix. The study ends with providing a discussion of new issues concerning the proposed standards-areas. The findings reflected that the literature related to the evaluation of e-Learning is naturally skimpy.

Anwar (2020). The researcher used sequential mixed methods approach. The items were ultimately created using the inductive as well as the deductive approaches. The researcher then collects data from 275 scholars, administrators and senior academicians, who work in institutions of e-learning in Saudi Arabia, Kuwait, and UAE. The findings proved that accountability obviously shapes the quality assurance's process.

The Concept of E-learning:

In a direct response to the ongoing development of technology, there is ultimately no single agreed upon definition for e-learning. In this context, Lee, et al., (2011) viewed e-learning as a system that effectively integrates different instructional material, by using audio, video, as well as text mediums. It is delivered via e-mail, online discussions, forums, live chat and assignments. In this context, many researchers prefer to apply the term e-learning to describe the adoption of technology in learning.

E-learning stands as a modern form of learning. It is conducted digitally. The term suggests the use of Internet in this type of learning. Moreover, it can be accessed via electronic devices like computers, tablets or smart phones. This type of learning involves the use of information, knowledge as well as **educational** technology so as to connect people with each other and, much importantly, with educational resources. Some scholars view electronic learning as education which is centered on modern communication methods. These methods include the use of computer as well as its networks. They also include different audio-visual materials, electronic libraries, search engines and websites.

Any practical definition of e-learning should include the digital content that is designed to teach. Other scholars go to the extent of saying that e-learning includes concepts more than online learning. These concepts include distributed learning, virtual learning, or web-based learning.

Principles and Objectives of E-learning:

Since its advent as a modern type of learning, E-learning has followed a number of principles and aimed to achieve a number of objectives. The most important principles and objectives of e-learning are summarized below:

1. Meeting the needs of students and understanding their favorite learning style.
2. Improving the efficiency and effectiveness of learners.
3. Improving user-accessibility as well as time flexibility so as to engage learners in the learning process.

4. Making education accessible to everyone worldwide.

Electronic Quality Management:

An Electronic Quality Management System refers to a new digitalized approach that leads to Quality Management Systems. Using Electronic Quality Management ultimately creates the possibility for real-time management of all recorded data.

E-learning's Quality Standards:

Since e-learning's advent as a new type of modern education, there has been a hot debate among scholars concerning the quality standards in e-learning. These scholars believe that since e-learning is accessible to everyone worldwide, there should be some standards that would ensure its quality. The point is that e-learning is based on online contents and such contents can be prepared by anyone regardless his qualification or knowledge. This point has made scholars concerned about the necessity of evaluating the existing systems of e-learning as well as setting standards so as to ensure their quality.

There have been many speculations about the standards of e-learning's quality and the possible ways to ensure their application. In this context, Auvinen & Peltonen (2012) argue that the education's quality can ultimately be viewed from certain perspectives; namely, economic, technological, and pedagogical. In the past, standards of quality were closely linked with certain outcomes. That is, quality was examined on the basis of evaluating quality of courses along with pre-described learning outcomes. However, this method changed in the last few years. In this respect, Bremer (2012) remarks that approaches which are process-oriented started to dominate.

It is noteworthy that e-learning's quality can be investigated in certain different contexts; namely, quality via e-learning, which indicates the quality of the educational process as a whole, and the e-learning's quality itself which refers to the subject of developing the e-learning's quality. In this respect, the Institute of Electrical and Electronic Engineer (IEEE), proposed a clearer definition of quality which it views as the level to which a particular system, process or component meets the prescribed requirements. This institute further elaborated the concept of quality and considered it as the level to which a particular system, process or component becomes consistent with the expectations and needs of customers. Truly speaking, any system's quality ultimately highlights its effectiveness. Therefore, the quality of any educational system can effectively be evaluated by its effectiveness. In this respect, e-learning system's quality is crucial as many studies proved that the e-learning's future is mainly based on its quality.

The previous literature on e-learning has revealed that certain factors like user's attitude, user's usefulness, user's satisfaction, user's concentration, subjective norms and perceived behavioral control significantly impact the e-learning's continuity (Lee, 2010). Some scholars like Levy (2007) have focused on the student satisfaction as an important standard of e-learning. Levi (2007) strongly argued that student satisfaction is the main indicator of e-learning's success. However, student satisfaction is not the only indicator of successful e-learning. There are other indicators, as proposed by many scholars including Paechter, et al., which have an apparent role in bringing about the e-learning's success. These include friendly electronic environment, instructional design, interaction between students, cognitive and emotional outcomes, and

interaction among students and teachers. These factors play imperative role in making any e-learning system a success (Paechter, et al. 2010). Other scholars like Lin & Bhattacharjee (2010) have suggested other factors including usefulness, attitude as well as ease of use which they regard as significant for the success of any e-learning program. In this respect, some researchers like Hassanzadeh, et al. (2012) included compliance objective and quality educational system as significant elements for the e-learning's success (Hassanzadeh, et al. 2012). Other crucial factors include student preparedness which was highlighted as imperative for making any e-learning system a success (Parkes, Stein et al., 2015).

This study will highlight a number of standards concerning E-learning's quality, the most important of which are:

1. Commitment
2. Technological infrastructure
3. Services for students
4. Development and design
5. Instructor and instruction services
6. Delivery of program
7. Financial health

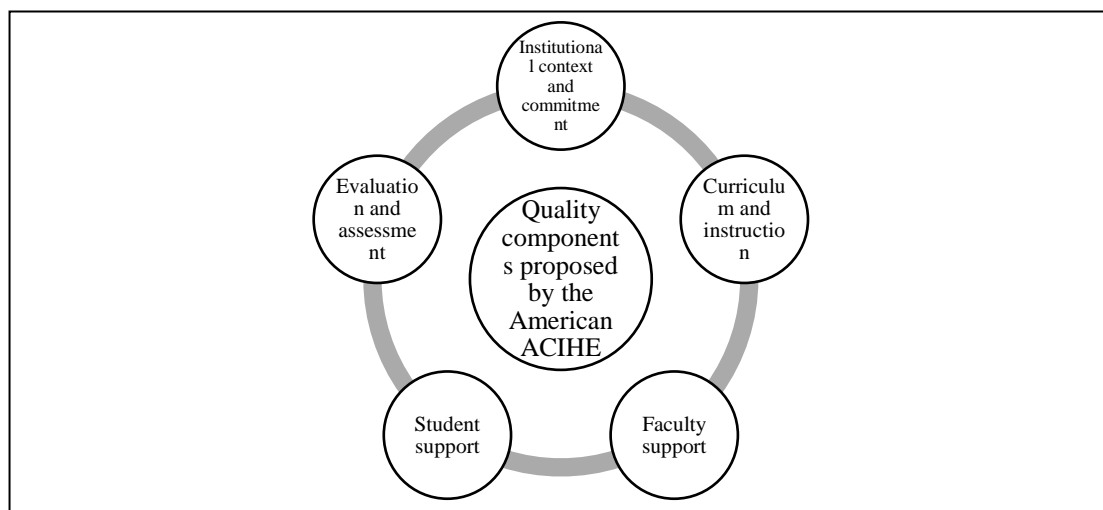
8. Regulatory requirements
9. Evaluation of program.

E-learning and Quality Standards of International Organizations:

This part highlights the efforts made by international organizations to follow quality standards in E-learning. It also highlights the need that international organizations should seriously deal with quality development as an essential process and that standards of e-learning quality should be implemented to a large extent. Many international organizations have made great efforts to ensure quality standards in their e-learning systems. Such organizations have proposed different models and approaches in this regard.

The American (ACIHE) proposed a number of 5 quality components which involve 29 best e-learning's practices. These quality components are: 1. institutional commitment and context. 2. Instruction and curriculum. 3. Support for faculty 4. Support for student 5. Evaluation (Jung, 2010). This model is comprehensive and it has greatly achieved its goal for it focuses not only on the content being provided online but also on management, teacher, learner, content and evaluation. The following figure illustrates this.

Figure 1: The five quality components proposed by the American ACIHE

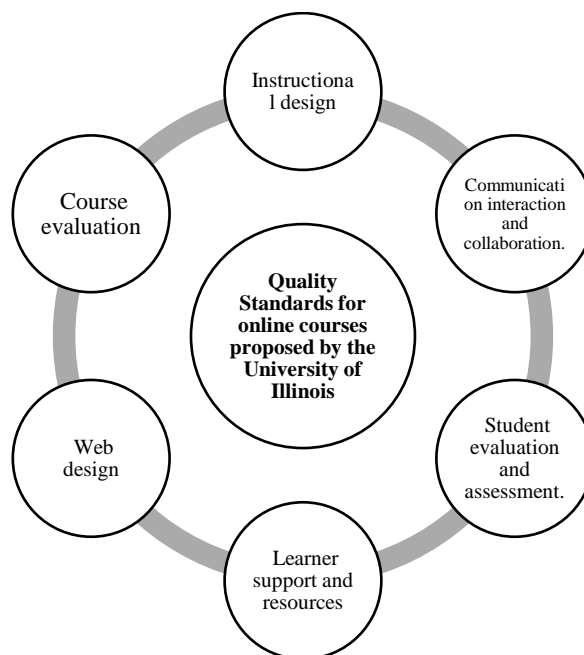


*Source: Prepared by the researcher.

Another approach was proposed by the University of Illinois in 2015. This University made great efforts to develop quality standards for online courses. Its approach to ensuring e-learning quality is based on 6 sections. Moreover, each section has certain criteria. These sections are: 1. **Instructional design** 2. Collaboration and

interaction. 3. Evaluation and of student. 4. Support and resources for learner. 5. Design of Web 6. Evaluation of course (Debattista, 2018). This approach is very similar to that proposed by the American (CIHE) as both approaches pay attention to all the elements of teaching and learning process. The following figure illustrates this.

Figure 2. Quality Standards for online courses proposed by the University of Illinois

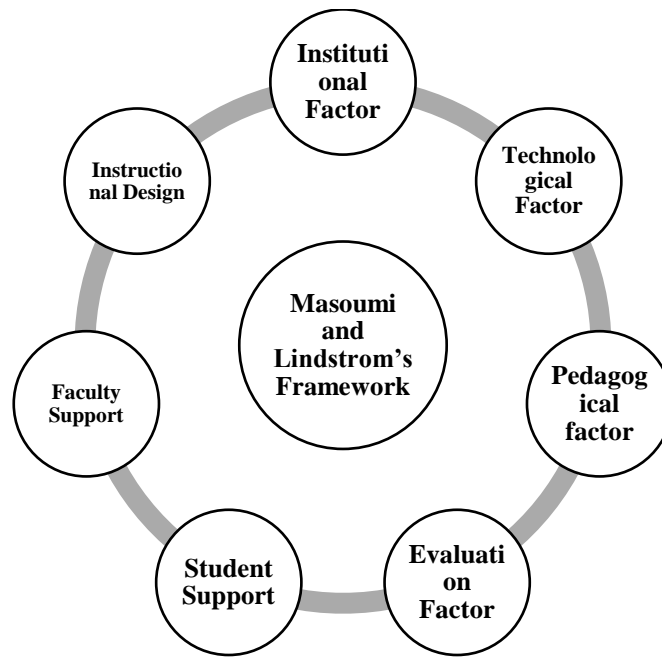


*Source: Prepared by the researcher.

The subject of e-learning's quality standards has received the attention of other scholars like Masoumi & Lindstrom (2011) who developed E-learning Quality Framework. This framework is centered on seven factors as follows: 1. Institution. 2.

Technology. 3. Pedagogy. 4. Evaluation. 5. Support for student. 6. Support for faculty. 7. Design of instruction. (Masoumi & Lindström, 2011). This framework is represented in Figure (3) below.

Figure 3. Masoumi & Lindstrom's Framework

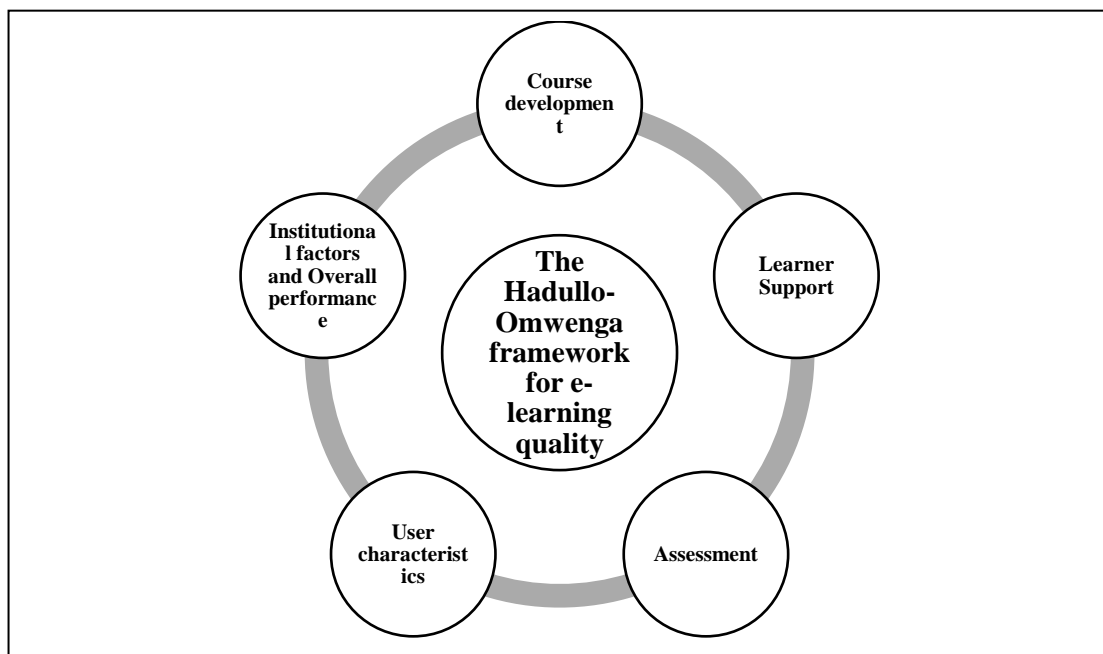


*Source: Prepared by the researcher.

In this context, Hadullo and Omwenga (2017) developed another framework that aimed mainly to ensure the e-learning's quality. The Hadullo-Omwenga framework included six factors which are as follows: 1. Development of course, 2. Support for learner, 3.

Assessment, 4. Characteristics of user, 5. Institution and performance (Hadullo&Omwenga, 2017). This framework is illustrated in the following figure.

Figure 4. The Hadullo-Omwenga framework for e-learning quality

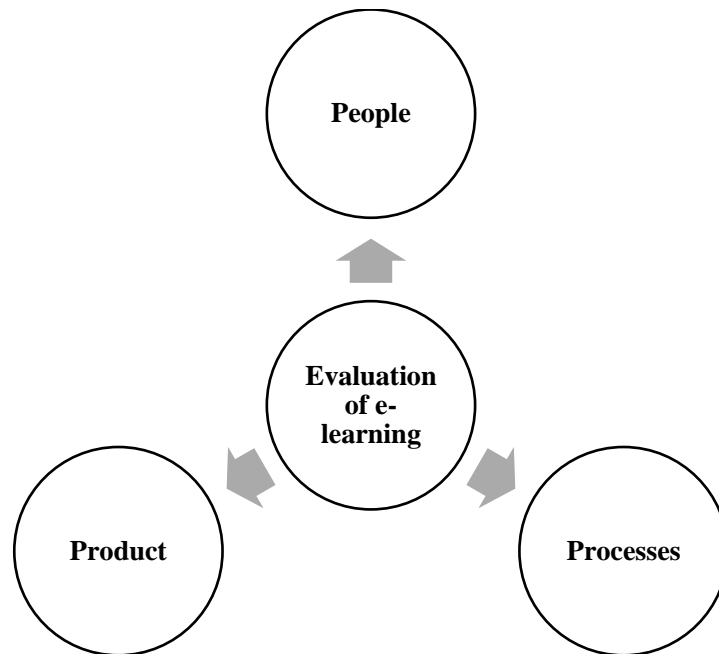


*Source: Prepared by the researcher.

Other scholars like Khan (2004) have focused on the evaluation process of e-learning. They emphasize that evaluation is the most important standard for ensuring quality. Khan (2004) proposed what he

called as P3 model. This model is concerned with examining **three e-learning dimensions, namely, the Product, the People, and the Processes** (Khan, 2004). Figure 5 shows this.

Figure 5. P3 model

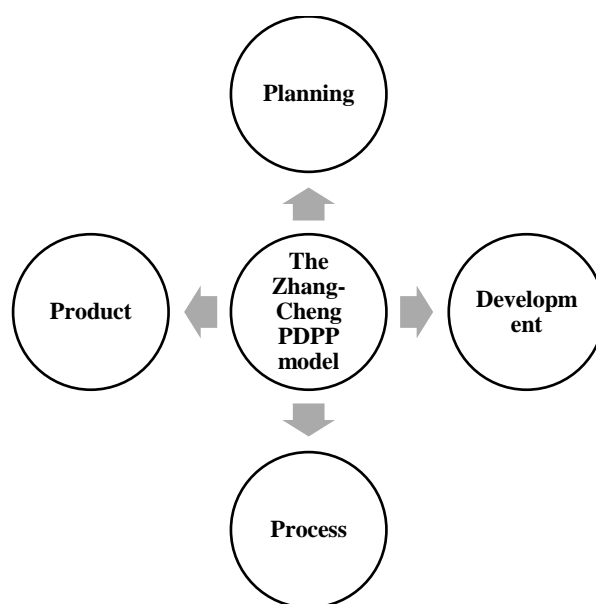


*Source: Prepared by the researcher.

As shown in Figure 5 above, the P3 model views that evaluation of e-learning quality is centered on three standards; evaluation of the people, the processes' evaluation and the product's evaluation. Another model for e-learning quality standards was proposed by Zhang and Cheng (2012).

Their model is known as the PDPP model. This model focuses on four main quality's aspects, namely, **planning, process, development and product**. The **Zhang-Cheng PDPP model** is represented in the following figure.

Figure 6. The Zhang-Cheng PDPP model



*Source: Prepared by the researcher.

Many organizations have been established around the world mainly to ensure the application of quality standards in e-learning. Such organizations take upon themselves the responsibility of setting, implementing and evaluating the quality standards in e-learning. In this context, one

of the most renowned organizations is the Quality Matters Organization. This organization is famous for its QM Standards which aim at ensuring quality in e-learning. The QM Standards are widely followed sets of e-learning quality standards. They are ultimately developed on the basis of the best online courses to promote the process of student learning.

Table 1. Summary of the most important models of quality standards in e-learning

Model	The five quality components proposed by the American ACIHE	Quality Standards for online courses proposed by the University of Illinois	Masoumi and Lindstrom's Framework	The Hadullo-Omwenga framework for e-learning quality	P3 Model	The Zhang-Cheng PDPP model
Standards	<ol style="list-style-type: none"> 1. institutional context and commitment. 2. instruction and curriculum. 3. support for faculty. 4. support for student 5. Evaluation 	<ol style="list-style-type: none"> 1. design of instruction 2. interaction and collaboration of communication. 3. evaluation of student. 4. support and resources for learner. 	<ol style="list-style-type: none"> 1. Institutional Factor. 2. Technology. 3. Pedagogy 4. Evaluation 5. Support for student. 6. Support for faculty. 7. Design of instruction. 	<ol style="list-style-type: none"> 1. Course development. 2. Learner Support. 3. Assessment 4. characteristics of user. 5. Institution and performance 	<ol style="list-style-type: none"> 1. People 2. Processes 3. Product 	<ol style="list-style-type: none"> 1. planning 2. Development 3. process and product

		5. design of Web. 6. Evaluation of course.				
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The above table clearly shows that different quality standards models in e-learning systems have presented different factors. Interestingly, none of these models is wrong. In a sense, all models provide valuable quality standards and they should be taken into account. Apart from this, many scholars have focused upon the role of infrastructure for technological support of e-learning. In this respect, the infrastructure for technological support is viewed as an important quality standard in e-learning.

Conclusion:

E-learning is regarded as the most advanced form of learning which aims at meeting the needs of students and understanding their favorite learning style, improving the efficiency and effectiveness of learners, improving user-accessibility as well as time flexibility so as to involve learners in learning, and making education accessible to everyone worldwide. Moreover, the subject of e-learning's quality standards has received the attention of scholars and international organizations.

The findings of this study reveal that there have been a number of attempts to ensure the quality standards in e-learning. Much importantly, this study reveals that there has not been an internationally agreed upon list of standards in e-learning system. The most important attempts in this regard include the five quality components proposed by the American ACIHE, Quality Standards for online courses proposed by the University of Illinois, Masoumi & Lindstrom's Framework, The Hadullo-Omwenga framework for e-learning

quality, P3 Model, and The Zhang-Cheng PDPP model.

Recommendations:

On the basis of the above findings, this study recommends the following:

- E-learning should be given much attention since it is the most appropriate form of learning in our age.
- Educational institutions should provide proper e-learning environments.
- E-learning authorities around the world should discuss the possibility of having an internationally agreed upon list of standards in e-learning system.

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References:

1. Shraim, Khitam. (2020). Quality Standards in online Education The ISO/IEC 40180 Framework. *International Journal of Emerging Technologies in Learning (iJET)*. 15. 10.3991/ijet.v15i19.15065.
2. Jia, Frydenberg. (2002). Quality Standards in eLearning: A matrix of analysis. *International Review of Research in Open and Distance Learning*. 3. 10.19173/irrodl.v3i2.109 .
3. Anwar, S. A., Sohail, M. S., & Al Reyaysa, M. (2020). Quality

- Assurance Dimensions for e-learning institutions in Gulf Countries. *Quality Assurance in Education*, 28(4), 205–217. <https://doi.org/10.1108/qaе-02-2020-0024>
4. Misut, M., & Pribilova, K. (2015). Measuring of quality in the context of e-learning. *Procedia – Social and Behavioral Sciences*, 177, 312–319. <https://doi.org/10.1016/j.sbspro.2015.02.347>
 5. & علاوي جهان. & يحيى منى, (2022). مستوى تطبيق معايير الجودة في التعليم الالكتروني في الكلية التقنية الادارية – بغداد من وجهة نظر التدريسيين. *Journal of Al-Rafidain University College For Sciences* (Print ISSN: 1681-6870 ,Online ISSN: 2790-2293), (1). <https://doi.org/10.55562/jruc.s.v5i1.521>
 6. Bremer, C. (2012). Enhancing e-learning quality through the application of the AKUE procedure model. *Journal of Computer Assisted Learning*, 28(1), 15-26. doi: 10.1111/j.1365-2729.2011.00444.x
 7. Masoumi, D., & Lindström, B. (2012). Quality in e-learning: a framework for promoting and assuring quality in virtual institutions. *Journal of Computer Assisted Learning*, 28(1), 27-41. doi: 10.1111/j.1365-2729.2011.00440.x
 8. Zhang, W., & Cheng, Y. L. (2012). Quality Assurance in E-Learning: PDPP Evaluation Model and its Application. *The International Review of Research in Open and Distance Learning*, 13(3).
 9. Jung, I, 2010. The Dimensions of E-Learning Quality: From the Learner's Perspective. *Educational Technology Research and Development* 59 pp. 445–464. DOI 10.1007/s11423-010-9171-4
 10. Debattista, M., (2018). A Comprehensive Rubric for Instructional Design In E-Learning. *The International Journal of Information and Learning Technology* Vol. 35 No. 2, 2018 pp. 93-104
 11. Hadullo, Oboko and Omwenga, 2017. A Model for Evaluating E-Learning Systems Quality in Higher Education in Developing Countries. *International Journal of Education and Development using Information and Communication Technology (IJEDICT)*, 2017, Vol. 13, Issue 2, pp. 185-204.
 12. Khan, 2004. Comprehensive Approach to Program Evaluation In Open and Distributed Learning (CAPEODL) Model. Introduced in The Program Evaluation Course. George Washington University.
 13. Lee, Y. H., Hsieh, Y. C., & Hsu, C. N. (2011). Adding innovation diffusion theory to the technology acceptance model: Supporting employees' intentions to use e-learning systems. *Journal of Educational Technology and Society*, 14(4).